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Cognition according to Latour

David Antolínez[1]

Abstract

What would be required to dismantle modern psychology? How could it be purged of its pervasive dichotomies? Could we focus on hybridisation to reformulate psychology as a non-modern science? This overreaching project will be explored in a series of four essays. This second article will explore some usually overlooked exchanges between Bruno Latour and cognitive sciences. The French philosopher, suspicious of classic cognitivism, crafted an alternative theory of thinking. Incidentally, different authors started to conceptualise cognition as situated and distributed simultaneously. However, by the turn of the century, Latour turned his attention to ecology, leaving the incognita of how his prior theses would play out in contemporary debates about the nature of the mind. This article explores Latour further as a cognitive scientist by reconstructing his account of cognition, delineating the genealogy of those dialogues and contrasting his arguments with other contemporary authors' work.

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When Science and Technology Studies (STS) were emerging, back in the early 80s, Bruno Latour – a pioneer of this interdisciplinary field – strongly rejected psychology. He disavowed the way epistemologists, natural scientists and anthropologists utilised psychological theories to reinforce the Great Division between the supposedly civilised West and its savage others. Additionally, for him, psychology holds a critical position in what he calls the Modern Constitution. It keeps the notions of "mind" and "subjectivity" in the pole of the inner world, against the "matter" and "objectivity" of the external world – the former dismissed as fictional, and the latter recognised as factual. Latour recommended that cognitive explanations of how science works should be ruled out to avoid such epistemological and political issues. Most of his colleagues shared this suspicion of psychology, with only some peripheral efforts to explore the rational dimension of science.[2] Eventually, a plethora of works within STS provided a non-cognitive description of sociotechnical systems, scientific controversies and R&D policies. Numerous scientists, in turn, started to regard STS as an adversary of rationality. Against this view, this essay aims to illustrate how the rejection of cognitive explanations is less a denial of and more an invitation to reformulate psychology.

Latour also expressed discomfort with social sciences, including psychology, due to their scientistic pretensions and their indifference towards non-human agency.[3]

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[2] Tweney et al., eds. *On Scientific Thinking*; Langley, et al., *Scientific Discovery*; Fuller et al., eds. *The Cognitive Turn*; Giere, *Cognitive Models of Science*.

[3] Latour, "The politics of explanation: an alternative," 158.

Unfortunately, his quarrels with fellow sociologists overshadowed his subtle liaisons with cognitive scientists. First, I will expose how the French philosopher constructed an alternative account of cognition based on inscription manipulation and technical mediation. Secondly, I will review how he tried to supplement such theses with ecological and enactive approaches. I shall also highlight how, conversely, some cognitive scientists actively discussed his work. By the turn of the century, Latour had left behind STS and had committed to ecology. Finally, I wish to explore what would have happened if he had continued to participate in that intellectual milieu. More specifically, I wonder how his ideas could be related to current debates about representationalism, panpsychism and embodiments. Hopefully, this reconstruction can rehabilitate Latour as a figure worthy of inclusion in the recent history of cognitive sciences.[4]

Mundane reasonings

In the late 70s, Bruno Latour, Harry Collins and Michael Lynch were among the first sociologists who conducted ethnographies of laboratories to observe science in the making. From his own study, Latour developed a theory about the production and circulation of inscriptions, a crucial element for testing hypotheses, gathering proofs and writing articles. The philosopher-turned-sociologist always held to his early findings, but when Lynch's monograph was published, he confessed that his semiotic approach was rather superficial when compared to the ethnomethodological account of his American colleague.[5] Lynch argued for a deeper engagement with the technical work of the scientific community. Descriptions of so-called social variables – rites, hierarchies, identities, etc. – were accessory at best, while the know-how of practitioners and the use of instruments were key to understanding the cognitive traits of a scientific community. Latour saw Lynch's thesis as a refined development of his primal theory of inscription manipulation. What is noteworthy here is that artefacts enable novel cognitive operations that cannot be found inside the brain of the scientist. Put differently, technology is not only the furniture of a lab or mere components of arms-race machinery in the agonistic life of sciences. Rather, technology is, foremost, the condensation of materials that facilitate hitherto original forms of perception and reasoning.

Unwittingly, this argument took Latour further away from STS and closer to cognitive science. If inscription manipulations and technical mediations are said to restrict and/or allow mental operations, this should be true for scientists and laypeople alike. Still, he kept extracting most of his illustrations from scientific achievements. In a remarkable contribution to a book edited by Lynch, Latour detailed how inscription manipulations relied on the development of Euclidian geometry to ensure proportions; the refinement of perspective to obtain optical consistency; and press technologies to generate unequivocal copies at low cost – in short, of a visual culture where people had already learnt to understand the world through the observation of words, graphs, diagrams, tables, etc.[6] The herbalist has a different relationship with his plants in the garden than the botanist, who juxtaposes schematic drawings of leaves looking for structural similarities. The tax collector who keeps track of each payment in a single notebook performs different mental operations than the bureaucrat with access to

[4] See a similar remark made by Silver, "Hooke, Latour, and the history of extended cognition," 199.
[5] Latour, "Will the last person to leave the social studies of science please turn on the tape-recorder?" 543.
[6] Latour, "Drawing things together," 34.

a whole archive with sheets that summarise budgets and make projections for next year. In this sense, cognition is not a mysterious private event inside the skull, but the outcome of the mundane interactions with inscriptions rearranged in manifold ways.

Those ink and paper examples can be regarded as soft techniques. In the case of complicated artefacts, they not only condition our cognitive processes, but also prompt our behaviour. Latour defined technology as "programs of actions," "labyrinths of machinery," and "mediators," in contrast to other philosophical traditions that emphasise clockwork precision, inanimate materiality and instrumental usage of artefacts.[7] Non-human entities are far from straightforward objects since most of them are the folding of distinct materials, locations and times. The apparently simple key used to lock a door condenses copper from a faraway mine, the heat and hammer strokes that shaped it, the reproducible design of its handle and head – which allows it to fit in the cavity of the lock –, the expertise of architects and contractors that installed the front door, and the adequate handling of the user.[8] Depending on how a program of action is coupled with another one could get distinct results. Latour enlisted four types of coupling: translation, composition, black-boxing and delegation. Beyond their peculiarities, what is important is to understand that artefacts neither transport nor crystallise human action, but rather transform it at each stage of the process. This remains so whether you (as a common citizen) are closing a door or you (as a historian of science) are analysing the hygiene revolution in France.

Not all authors in STS agreed with this distilled theory of non-human agency. Those debates – especially with Collins – are extensively commented on elsewhere, so we can evade them to focus on how human-artefact interactions are responsible for changes in mental operations. While classic cognitivism presents thinking as an activity based on (semantic) information processing done by discreetly separated closed systems with feedback loops,[9] the non-modern philosopher preferred material inscriptions over ethereal symbols and embodied artefacts over mental modules. Latour claimed: "when cognitive capacities are instrumentalized heavy enough, then it will be possible to provisionally attach meaning to [symbols], but not before"[10] and "new cognitive capacities owe their extension less to the powers of symbols than to those of the instruments that hold them."[11] For Latour, our dependence on technology goes as far as to turn inconceivable any notion of "naked cognitive capacities,"[12] since humans are always mediating our interactions through non-human entities. This is true at several levels, whether this be the material framework in which we are embedded, everyday soft techniques or complicated artefacts developed by engineers. In sum, against the Cartesian reminiscences of classic cognitivism, Latour stressed how material culture redistributes all the features of our thinking processes.

It is easy to accept a watered-down version of this theory, forgetting that Latour prohibited using human reason as an explanatory resource and defined non-humans as generators of cognitive operations. In other words, it does not suffice to say that the human mind projects itself onto artefacts acting as screens. Instead,

[7] Latour, "On technical mediation," 30.
[8] Latour, "The Berlin key or how to do things with words," 18.
[9] For a comprehensive exposition, see Gardner, *The Mind's New Science*.
[10] Latour, "On interobjectivity," 235.
[11] *Ibid*., 238.
[12] *Ibid*., 242.

new kinds of cognition emerge due to the coupling of programs of action. Let us exhibit two additional examples to reinforce this point. First, Latour proposed a mental experiment where two twins must travel a great distance; the sister must create a path through a thick wilderness that scars her body at each step, while the brother can safely move thanks to the railway system someone else already designed, installed and maintained for him. Our relationship with space and time is not regular, since those are not constant variables of the world or the mind, but rather consequences of how our bodies impact others.[13] Indeed, bodies are not only present when it comes to inscriptions and artefacts, since we, humankind, constantly employ our own bodies to register the intensity and reversibility of each event. Second, Latour recalls the photographic gun invented in 1882 by Étienne-Jules Marey for the visual study of locomotion.[14] This device takes numerous successive photographs of a moving bird, bicycle or athlete to facilitate the observation of muscles and gear. What is remarkable about this artefact is not that it decomposes the physical space-time so our imperfect senses can catch up with fleeting happenings, but rather that it educates our vision by establishing an equivalence between a sequence of images and the movement of autonomous bodies. Again, the lesson of technical mediation is that artefacts, instead of extending our already (pre)formed cognitive capacities, force us to take detours in which our mind acquires new shapes.

Flirtations with post-cognitivism

Latour crafted his account of cognition at the margins of psychology, taking inspiration mainly from history of art and sociology of science. As we just saw, his account was contrary to classic cognitivism. Yet his stress on materiality has usually been misunderstood as a plea for eliminativism, despite the numerous critiques of reductionism advanced by Latour.[15] Others have found some reminiscences of Vygotsky's work in his views on technical mediation. Latour partially accepted this connection, although the Soviet psychologist – like other Marxists – still had an asymmetrical preference for human action.[16] As Barbara Herrnstein Smith suggested, it is probable that Latour, while teaching at the University of San Diego in the mid-80s, was concerned with being seen as a philosopher of the mind of the sort of Churchland or Kitchener – incidentally working in California at the same time.[17] The writings of the latter were focused excessively on neural networks and mental schemata – just the opposite direction Latour was taking! After developing his idiosyncratic theses, Latour reluctantly began to engage in fine-grained discussions with cognitive scientists, trying to counteract the pull of classic cognitivism and eliminativism. It falls beyond the scope of this essay to reconstruct in detail such debates, but we can present a synoptic overview of the authors with whom the non-modern philosopher tried to ally himself.

Latour did not have direct contact with the founders of classic cognitivism; instead, he had an ambivalent relationship with

[13] Latour, "Trains of thought," 174.
[14] *Ibid*., 183. See also Latour & Yaneva, "Give me a gun and I will make all buildings move: an ANT's view of architecture."
[15] Latour, "How to talk about the body?" 224.
[16] Latour, "Cogito ergo sumus!" 57.
[17] Smith, "Microdynamics of incommensurability," 55.

their disciples. For instance, Anne-Nelly Perret-Clermont invited him to celebrate the centenary of Jean Piaget. Even though he recognised Perret-Clermont's work for being sensitive to the nuance of local interactions in the classroom, Latour still critiqued genetic epistemology for forgetting about the artefacts involved in intelligence testing.[18] Something similar happened with Michael Cole, the intellectual heir of Vygotsky and Luria. The philosopher-turned-sociologist appreciated Cole's awareness of the cultural variables in school settings, even though he also saw it convenient to widen his scope to include other scenarios.[19] A notable exception was James Gibson, first trained in Gestalt psychology, whose ecological approach to perception was applauded by Latour. We can point to three parallel links between both authors: 1) the concept of affordance strongly hints at non-human agency; 2) perception is interactive rather than representational, liberating the mind from the inner world (more below); and 3) the emphasis on the constant movement of bodies inside a niche disturbs the misleading framework of frozen objects observed by fixed subjects.[20] Unfortunately, Gibson's premature death impeded any possible collaboration with Latour.

Due to those conflicts, the French philosopher sought to get closer to other researchers exploring how cognition is situated and distributed.[21] Unlike the previous exchanges, these other scientists started to be actively engaged with Latour's ideas on inscription manipulation and technical mediation. The first case was Jean Lave's study on how adults performed mathematical operations in real-life scenarios such as supermarkets or dieting. The algorithmic nature of those procedures is devoid of its privileged status since Lave is mostly interested in how people can modify the setting that poses the arithmetic problem to gain consistency with their repertoire of answers. Latour served as proofreader of the manuscript, and his work was mentioned alongside that of other lab ethnographers, as an example of how professional scientists also develop situated cognitive competencies.[22] Next, there is the theory of cognitive trails developed by Adrian Cussins. Coming from analytic philosophy of language and mind, he adopted Latour's symmetric anthropology to question the dichotomies between subject/object entailed by the correspondence theory of truth. If the terms "nature" and "culture" were the result of a series of stabilisations, then the same holds for "mind" and "world."[23] Cussins also stressed the importance of embodiment in the active exploration of any environment. Against representationalism, he suggested that humans effectively mark the environment to create trails that facilitate orientation and interaction. Both Lave and Cussins reject the simile between cognition and computation, exploring instead how the manipulation of symbols incarnated in different media served humans to synchronise themselves with the dynamic spaces they inhabit.

Then we arrive at the most intimate liaison Latour had with cognitive sciences: Edwin

[18] Perret-Clermont, *Social Interaction and Cognitive Development of Children*; Latour, "Trains of thought," 189.
[19] Cole and Scribner, *Culture and Thought*; Latour, "Drawing things together," 51.
[20] Gibson, *An Ecological Approach to Visual Perception*; Latour, *Reassembling the Social*, 72 and "Sensitizing," 316.
[21] For a presentation of post-cognitivism – also known as 4E cognition – see Rowlands, *The New Science of the Mind*. See also Newen, Gallagher & De Bruin, *The Oxford Handbook of 4E Cognition*, for a presentation about the coupling/constituent debates within this scholarly trend.
[22] Lave, *Cognition in Practice*, 82.
[23] Cussins, "Content, embodiment and objectivity: the theory of cognitive trails," 677.

Hutchins's influential *Cognition in the Wild*. In a review praising this book, he stated:

> [I]n 1987 I proposed a "moratorium" on cognitive explanations, which had been so freely and cheaply entertained by epistemologists. I already knew Hutchins's work and made good use [of it], but I did not know that I would be able to safely lift the ban, less than 10 years later, since in the meantime, cognitive explanations would have been dissolved beyond recognition by the very same Hutchins and made thoroughly compatible with the social explanations of science, technology and formalism devised by my colleagues and myself.[24]

Indeed, Latour considered that Hutchins overcame classic cognitivism due to an "externalization of the work of thought."[25] In this case, both authors were already acquainted with each other's work. The American anthropologist explicitly accepted the French philosopher's challenge to avoid formalism, describing instead how cognition is achieved thanks to the propagation of inscriptions throughout artefacts.[26] Hutchins conducted an ethnography on a military ship to observe how numerous measurements were coordinated to ensure safe navigation. From weather predictions, passing through cartographic readings and radar calculations, to the division of duties between the upper deck and the cabin, Hutchins portrayed a highly complex system. Still, unlike the discrete modules of the mind proposed by Fodor, representations flow from one artefact to another, changing their format at each step and breaking any possible linear correspondence between a symbol and its alleged material referent.[27] If navigation succeeded, it was thanks to neither the captain's mind nor the accuracy of his calculations, but rather to the constant calibration of how inscriptions are redistributed and reconfigured alongside a technical network.

A sharp reader might be surprised that we have not mentioned yet *The Embodied Mind*, perhaps the main pillar of post-cognitivism. This is because Francisco Varela is a latecomer in the Latourian corpus of references. The Chilean psychologist is not mentioned by Lave, Cussins, or Hutchins either – otherwise, that would probably have drawn Latour's attention. As far as my limited bibliometric abilities have allowed me, I tracked three tangential references to Varela's work done by the non-modern philosopher: 1) a neutral allusion to his phenomenological approach to consciousness[28]; 2) a critique of the concept of autopoiesis[29]; and 3) a compliment of the way *The Embodied Mind* avoided the reductionist pitfalls of cybernetics and linguistics, daring to extend cognition to the realm of spirituality and ecology.[30] Sadly, Varela died in 2001 at the age of 54, leaving his own program of research incomplete. Interviewed by the press during a visit to Chile, Latour commented that he only met Varela months before his passing.[31] This missed encounter is highly ironic, considering that Varela had a long career at the *Centre national de recherche scientifique* in Paris – the very institution where Latour worked for a quarter of a century!

[24] Latour, "Cogito, ergo sumus!" 62.
[25] Latour, *The Modern Cult of the Factish Gods*, 134.
[26] Hutchins, *Cognition in the Wild*, 132.
[27] Latour, "Cogito ergo sumus!" 55.
[28] Latour, "How to talk about the body?" 225.
[29] Latour, *Reassembling the Social*, 163.
[30] Latour and Teil, "The Hume machine," 323.
[31] Latour, "El capitalismo no tiene nada que ver con el futuro," *The Clinic*, February, 2015. https://saposcat.cl/tal-vez-no-hay-planeta-suficiente-para-el-capitalismo-bruno-latour/.

To complete this survey of intellectual affairs, we can point out two subgroups with whom Latour tried to relate in later years. First, some philosophers of mathematics took seriously ontology to subvert the transcendentalism that characterises that subfield. For instance, Latour made a passing reference to Brian Smith to critique the unproblematised axiom that computers – like humans, according to sociologists *à la* Wittgenstein – obey formal rules.[32] One can also find a positive mention of Brian Rotman, who rendered visible the seemingly ineffable practices of conceptualising abstract entities such as "zero" or "infinite."[33] Most of all, Latour admired Reviel Netz's historical inquiry on the origins of deductive reasoning in Ancient Greek geometry. In his eyes, this was the ultimate description of how formalism has to do neither with universal *eidos* nor human *nous*, but rather with subtle procedures of writing, drawing and measuring longitudes. Furthermore, while reviewing Netz's book, Latour asserted that the STS project was completed: "[Netz] prefers to call his endeavour 'cognitive history' – which means exactly what we mean by 'science studies', namely an obsessive attention to the material, historical and practical conditions necessary for the discovery of new cognitive skills"[34]; in other words, if STS aims to propose an alternative history of science, both experimental practices and deductive reasoning had to be revisited in a non-formalist way. It might seem strange that Latour paid close attention to mathematics. Perhaps we can find here some echoes of his encounter with the hybrid history of mathematics advanced by Serres. However, Latour – always faithful to symmetry – accompanied these readings with other sources coming from social sciences,[35] namely, Carruthers's history of mnemotechnics in the Middle Ages, Gardey's analysis of the origins of typing machines and a volume of kindred cultural studies of cognition compiled by Rosental and Lahire.[36] This second subgroup of authors opened new ways to examine cognition beyond the labs of psychology, where the mind was frequently reduced to paper tests and puzzle-solving.

Contemporary debates

As mentioned above, around the 2000s, Latour detached himself from STS and spent his last years in the philosophy of ecology. His incursions in post-cognitivism, despite being fascinating at a conceptual level, had a peripheral impact at best. Consider, for instance, that numerous current researchers ignore Latour's contributions to the matter. In any case, in recent times, ecological, enactive, situated and distributed approaches have become the main trend and the 4E program of research has advanced in domains that Latour could not have foreseen. In this final part of the essay, I shall explore how we could relate the French philosopher's theses to contemporary debates on representationalism, panpsychism and embodiment. Again, my interest is not to present sharp-cut arguments on those overreaching topics but to employ these counterfactual exchanges between Latour and contemporary authors to focus on some possible shortcomings in the former's theory. That is why I shall risk a sketchy presentation of such debates, without pretending to give any substantial solution to them.

[32] Smith, *On the Origins of Objects*; Latour and Teil, "The Hume machine," 324.
[33] Rotman, *Ad Infinitum: The ghost in Turing's machine*; Latour, *On the Modern Cult of the Factish Gods*, 138.
[34] Netz, *The Shaping of Deduction in Greek Mathematics*; Latour, "The Netz-works of Greek deductions," 441.
[35] Latour, *Cogitamus: six lettres sur les humanités scientifiques*, 238.
[36] Carruthers, *The Book of Memory*; Gardey, *Écrire, calculer, classer*; Rosental and Lahire, eds. *La cognition au prisme des sciences sociales*.

Representationalism is a doctrine that maintains that the mind produces mental images as copies of material entities of the external world. Its roots go back to Descartes's defence of substance dualism and the Kantian schism between the subject and things-in-themselves. Analytic philosophy of mind has tried to overcome representationalism in several ways – the most notorious efforts were advanced by Ryle, Rorty and Dennett. Simultaneously, behaviourism proposed to design a psychology devoid of any reference to mental contents or operations. As we saw, classic cognitivism entailed a sort of neo-Cartesianism, thus rehabilitating representationalism. Both Gibson and Varela were fierce critics of representationalism, while other figures of post-cognitivism, such as Lave and Hutchins, held a more nuanced position.[37] We also observed that Latour is usually misread as an eliminativist since he was vocal about his discomfort with Descartes and Kant's web of dualisms. It could be further argued that, given Latour's enthusiastic references to Gibson and Varela's work, he was also against representationalism. Still, that would be a mistaken conclusion, since the very notion of representation lies at the heart of the Latourian account of cognition. Fair enough, the non-modern philosopher exhorted to dismantle formalism and to disturb the correspondence theory of truth – the cornerstones of representationalism. Yet, Latour did not try to argue that the mind does not perform representing operations nor that the external world is non-existent, so we only dwell in collective fantasies. He said, instead, that our bodies produce inscriptions in manifold formats, which ought to be arranged in coordination with a whole ecosystem of mediators.

Maybe we could better call his stance *poly*presentation since the chain of transforming inscriptions is closer to the lines of fugues played by symphonies than the obsession with fixed observation – graciously nicknamed the "disease of the Dutch" by Latour[38] – that science inherited from pictorial arts. Of course, the French philosopher was aware that lingering on the notion of representation could obscure his ideas. I suspect he held to it because he wanted to explore the political and aesthetic connotations of this term in other works.[39] But let us return to Varela, who explicitly founded enactivism as an alternative to representationalism.[40] He insisted not only on direct perception and movement, but also on the non-semantic nature of the schemes generated by the mind. In other words, it is the living body which allows thinking, not the acquisition of a language system. Curiously enough, this idea was completely endorsed by robotics, which developed artificial insects capable of moving by coordinating each leg with its own sensor and (most notably) in the absence of a central processing unit.[41] It is disappointing that Latour paid no attention to such artefacts, since they offered an empirical means to test those metaphysical intuitions.[42] It is also regrettable that recent advocates for a non-representational cognitive science, ignoring the entire STS literature, try to profit from robotics and Gibson's ideas, seeking

[37] Both authors seem to be more concerned with functionalism in its sociological sense than in its cognitive one. Lave, *Cognition in Practice*, 192; Hutchins, *Cognition in the Wild*, 176.
[38] Latour, "Sensitizing," 316.
[39] Latour, *On the Modern Cult of the Factish Gods*, 67.
[40] Varela et al., *The Embodied Mind*, 204.
[41] An acute discussion can be found in Clark and Toribio, "Doing without representing?" 412.
[42] Other STS authors – such as Lynch, Suchman and Lenoir – have offered a better analysis of computer science and robotics. See especially Fox Keller, "Booting up baby."

to rehabilitate a theory akin to mechanical principles and behaviourism.[43]

Internal divisions and omissions are frequent in philosophy too, as we can see moving to the next topic. Panpsychism is the doctrine that contends that the mind is not an exclusive property of humanity but rather a fundamental constituent of the universe. Lately, it has become a label to demarcate authors who are still committed to naturalistic explanations of consciousness from those willing to venture into transcendental realms. Panpsychism is usually portrayed as the definitive solution to the 'hard problem' of consciousness, which raises the question of how it is possible to qualitatively experience the world. See, however, that materialist researchers usually prefer to discuss the existence and interpretability of "qualia" and avoid using the term panpsychism.[44] Conversely, contemporary metaphysicians who entertain the possibilities of panpsychism might be familiar with analytic philosophy of mind – but they ignore the technical network of robotics, supermarket maths and nautical calculations that are pivotal for anyone with an STS-sensitivity.[45] Regarding Latour, the term "panpsychism" is nowhere to be found in his *oeuvre* and, likewise, his name is scarcely mentioned in the specialised bibliography. Nonetheless, we could pose the annoying question "does the Latourian account of cognition amount to panpsychism?" to illuminate how consciousness is related to his idiosyncratic theory.

At first glance, since the French philosopher denounced the role of psychology in the Modern Constitution, one could expect that he would reject consciousness as well. Indeed, in his discussion of non-human agency, Latour was quite careful of avoiding any compromise with the notions of intentionality and consciousness.[46] But similarly to the issue of representationalism, Latour is less a debunker than a reformer. In early writings, Latour emancipated himself from Marxist sociology through ethnomethodology and he scorned those who entertained the idea that "other people, before or elsewhere or down there below, believe in things and behave without consciousness."[47] All actors are equally (in degree) conscious, but they are so in different modes. In later writings, Latour was quite engaged with the philosophy of Whitehead, seeking to substantiate the multiplicity of modes of being. This led Latour to state that each actor – human or non-human – had a particular way to experience the world. See the following excerpt:

> Kidder's (1981) account of the Eagle computer tells us more about reflexivity than piles of Hofstadter's tricks, because it is the computer *itself*, yes, the *thing* itself that appears as a reflexive, sentient and historical event […]. Are these objects in the same way as an empiricist would like them to be? Not a bit. They are freed, active and anthropological *projects*, full of life, and ready to take place in a dramatic story. [T]here is more reflexivity in one account that makes the world alive than in one hundred self-reference loops that return the boring thinking mind to the stage.[48]

Or also this paragraph:

[43] Hutto and Myin, *Radicalizing Enactivism*.
[44] Ludlow et al., eds, *There's Something about Mary*.
[45] Skrbina, ed, *Mind that Abides*.
[46] Latour, *Reassembling the Social*, 44.
[47] Latour, "The politics of explanation: an alternative," 170.
[48] *Ibid*., 173.

> We accept the elementary stupidity of computers, and we fashion a sociology, a logic, and an ontology that work at their level [...]. Why should this new approach succeed when so many dreams of automata have failed? Precisely because we take the computer for what it is without imposing anthropomorphic projections and epistemological beliefs on it […]. Amorphous silicon and electrons have their own way of being in the world. We have to work from them instead of investing them with human properties so as to immediately deny that they have any.[49]

No doubt, those passages would fit nicely into any book about panpsychism. Despite Latour's elusiveness in discussing consciousness, it is hard to deny that his theories have undertones of panpsychism. At this point, however, I feel obliged to mark this movement as profoundly anti-Latourian. Clark, who is also sympathetic to distributed cognition, rightly asserts that the extension of cognitive operations does not equate to the extension of the qualitative experience. The doctrine of panpsychism begs the question of what consciousness is and how it is achieved by defining it as a cosmological constituent.[50] In Latourian terms, we should not take consciousness as an *a priori* term nor as *explanans*. Instead, we should go from resources to topics all the way down!

Finally, exiting cognitive science and entering anthropology, we arrive at the debate around the types of embodiments. In a recent book, Annemarie Mol – one of Latour's disciples – presents a nuanced critique of the notion of embodied cognition. Mol's intent is not a plea to return to the disincarnate *cogito*, but rather an incisive observation about the multiple ways of conceptualising the body. She retells that Merleau-Ponty, inspired by neurologist Kurt Goldstein, was the first philosopher to argue that cognition relied on a living body capable of movement and perception.[51] Note that Merleau-Ponty was a direct influence on Gibson, Varela and post-cognitivism in general. Mol considers this argument a triumph of empirical philosophy over rational chimaeras, yet she notes that a body does several things other than moving, seeing and talking. In particular, she is concerned with theorising the eating body; that is, an ingestive and metabolising machine that relates to its surroundings in a whole different fashion. But this critique could be extended to the dancing body, the laughing body, the fornicating body, etc.

In the second chapter of her book, Mol criticises Tim Ingold's account of walking outdoors for overstating kinaesthetic cognition, reinforcing a romantic view of natural landscapes and overlooking the subtleties of manufactured environments such as railways.[52] Mol explicitly compares Ingold's outdoor walking with Latour's thought experiment about the travelling twins, condemning the former and applauding the latter.[53] I find this comment quite odd. Certainly, Ingold's theory entails a "weak view of material agency" when compared to the symmetric stance of Latour,[54] yet both authors operate within the paradigm of the neuromuscular body. This is clear after reviewing the genealogy exposed above. Gibson, Cussins and Hutchins privileged navigation over any other activity. In many of the examples

[49] Latour and Teil, "The Hume machine," 311.
[50] Clark, "Spreading the joy? Why the machinery of consciousness is (probably) still in the head," 986.
[51] Mol, *Eating in Theory*, 31.
[52] *Ibid*., 45.
[53] *Ibid*., 158.
[54] Kirchoff, "Material agency," 212.

provided by Latour himself, if bodies are not moving, then they are probably reading an inscription (like the botanist) or handling an artefact (like the locksmith). Despite his mocking of Piaget, the French philosopher also underscored a cognitive circuit based on eye-hand coordination. Granted, Latour goes way beyond the human body – yet the body he portrayed remained a kinaesthetic one. In this sense, it is strange that Mol does not point out this limitation in Latour's writings. As far as I am aware, her book has not been discussed in the milieu of post-cognitivism or STS. I reiterate: if present researchers were familiar with Latour's work, they might take more seriously the generative dimension of artefacts instead of seeing material entities as mere canvases or vessels. Additionally, if they were introduced to Mol's work, they would realise that there are multiple functions performed by a body and, therefore, multiple conceptualisations of embodiment. How would the thinking process of the smelling body be? What about the caressing body? There remain virtually countless fascinating inquiries should STS and post-cognitivism be brought into engagement with each other again.

Conclusion

Throughout this article, I have tried to reconstruct the Latourian account of cognition, without being too dogmatic or too critical. I aimed to rehabilitate him as a peripheral contributor to the recent history of cognitive sciences. In his earlier writings, the non-modern philosopher was mordant in his rejection of psychology. But eventually, he and other authors offered an externalist, non-symbolic, non-formalist description of the work of thought. That is not to say that post-cognitivism is the only authorised brand of psychology by Latour – we should not take his authoritarian rhetoric too seriously. Rather, I see this reformulation as a sort of reverse engineering, a way to demonstrate that the mind is neither a *sui generis* substance nor a purely abstract set of operations. There is nothing pure about the mind, simply because purity is an illusion altogether. If we live in a hybrid world, it is only natural that we think in a hybrid fashion and through hybrid mediators as well. Latour's alternative theory of cognition seeks to celebrate such heterogeneity by weaving a seamless web where photographic guns, upper decks, railways, tax records, laboratories, supermarkets, silicon chips and many other entities are engaged in a mundane dance susceptible to empirical inquiry. Personally, I find this type of psychology more "scientific" and interesting than the pretensions of behaviourism or neuroscience. However, my goal is not to convince the reader. Instead, I have gathered – or better, folded – in these few pages a cascade of authors, arguments, controversies and references that anyone can trace back. Latour is mainly known as a sociologist of science and as a philosopher of ecology, so it is no surprise that his work is not much discussed among cognitive scientists. I hope to have succeeded in showing that there are numerous reasons to engage with his ideas in this field as well.

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